a controller adapted to control a gain of the wideband signal path based on the detected power level of the RF signals within the wideband signal path.

2. [AMENDED] A gain controller as claimed in claim 1, wherein respective first and second wideband signal paths are adapted to simultaneously process RF signals within respective uplink and downlink channels of the communications network.

3. [AMENDED] A gain controller as claimed in claim 2, wherein the narrowband detector and the micro controller are shared by the first and second wideband signal paths.

4. [AMENDED] A gain controller as claimed in claim 2, wherein each wideband signal path has a bandwidth corresponding to a respective one of an uplink channel bandwidth and a downlink channel bandwidth of the wireless communications network.

B1 cont

5. [AMENDED] A gain controller as claimed in claim 4, wherein the bandwidth of each channel is about 25 MHz.

6. [AMENDED] A gain controller as claimed in claim 1, wherein the wideband signal path comprises:

a first gain control block adapted to selectively control a first gain of the wideband signal path, the first gain being selected to compensate attenuation of the RF signal traffic received by the repeater from the first transceiver; and

a second gain control block adapted to selectively control a second gain of the wideband signal path, the second gain being selected to compensate attenuation of the RF signal traffic transmitted by the repeater to the second transceiver.

7. [AMENDED] A gain controller as claimed in claim 6, wherein the first gain control block is an Automatic Gain Control (AGC) block adapted to control the first signal gain based on a power of the RF signal traffic received from the first transceiver.

8. [AMENDED] A gain controller as claimed in claim 7, wherein the AGC block comprises:

a path Variable Gain Amplifier (VGA) adapted to control gain of the wideband signal path in response to a gain control signal;

an AGC feed-back loop adapted to supply a feedback signal to the path VGA as the gain control signal; and

a feed-back loop amplifier adapted to control a power level of the feedback signal supplied to the VGA, in response to an AGC control signal from the controller.

9. [AMENDED] A gain controller as claimed in claim 8, wherein the feed-back loop amplifier comprises a variable amplifier operatively coupled to receive the AGC control signal from the controller.

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10. [AMENDED] A gain controller as claimed in claim 9, wherein the variable amplifier is a variable logarithmic amplifier.

11. [AMENDED] A gain controller as claimed in claim 8, wherein the AGC feed-back loop further comprises a coupler adapted to supply a sample of RF signals in the wideband signal path to the narrowband detector.

12. [AMENDED] A gain controller as claimed in claim 6, wherein the second gain control block comprises a slaved variable gain amplifier adapted to selectively control the second signal gain based on a power of RF signals received from the second transceiver.

13. [AMENDED] A gain controller as claimed in claim 12, wherein the slaved variable gain amplifier is adapted to automatically reduce the second signal gain as the power of RF signals received from the second transceiver increases, and increase the second signal gain as the power of RF signals received from the second transceiver decreases.

14. [AMENDED] A gain controller as claimed in claim 1, wherein the narrowband detector comprises:

a synthesizer adapted to generate a synthesizer signal having a selected frequency;

an input adapted to receive a sample signal from the wideband signal path;

a mixer adapted to generate an intermediate frequency based on the synthesizer signal and the RF sample signal;

a signal isolator adapted to isolate, from the RF sample signal, RF signals lying within a narrow pass-band centered on the intermediate frequency; and

a detector unit adapted to detect at least a power level of the isolated RF signals.

15. [AMENDED] A gain controller as claimed in claim 14, wherein the synthesizer is adapted to select a frequency of the synthesizer signal using a synthesizer control signal from the micro controller.

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cont

16. [AMENDED] A gain controller as claimed in claim 14, wherein the input comprises a switching input adapted to selectively supply RF signals from one of the first and a second wideband signal paths to the mixer.

17. [AMENDED] A gain controller as claimed in claim 14, wherein the signal isolator comprises a selectable filter adapted to selectively attenuate a portion of the RF sample signal lying outside the narrow pass-band.

18. [AMENDED] A gain controller as claimed in claim 17, wherein the narrow pass-band has a bandwidth of approximately 30kHz.

19. [AMENDED] A gain controller as claimed in claim 17, wherein the selectable filter is adapted to adjust a bandwidth of the narrow pass-band in response to a control signal from the micro controller.

20. [AMENDED] A gain controller as claimed in claim 6, wherein the controller comprises:

a micro-processor operatively coupled to each of the first and second gain control blocks and the narrowband detector; and

software defining an Adaptive Control Algorithm for controlling operation of the micro-processor.

21. [AMENDED] A gain controller as claimed in claim 20, wherein the software comprises software code adapted to:

monitor a power level of RF signals detected by the narrowband detector;

compare the monitored power level to at least one threshold value; and

determine an optimum value of at least the first gain of the wideband signal path using the comparison result.

22. [AMENDED] A gain controller as claimed in claim 21, wherein the software code adapted to monitor the power level of RF signals, further comprises software code adapted to:

B1 a1 cont

monitor changes in the power level of the RF signals detected by the narrowband detector; and

identify a signal format of the detected RF signals, using the monitored changes.

23. [AMENDED] A gain controller as claimed in claim 21, further comprising software code adapted to select the threshold value from among a set of predetermined threshold values, using the identified signal format.

24. [AMENDED] A gain controller as claimed in claim 21, wherein the software code adapted to monitor the power level of RF signals further comprises software code adapted to decorrelate desired RF signal traffic from undesired leakage signals within the wideband signal path.

25. [AMENDED] A gain controller as claimed in claim 24, wherein the software code adapted to decorrelate desired RF signal traffic from undesired leakage signals comprises software code adapted to:

inject a predetermined unique code into the wideband signal path;

detect a power level of the predetermined unique code in the monitored RF signal; and

determine a proportion of leakage signals in the monitored RF signal using on the detected power level of the predetermined unique code in the monitored RF signal.

a1 B1 cont

26. [AMENDED] A gain controller as claimed in claim 25, further comprising software code adapted to adjust the optimum value of at least the first gain of the wideband signal path using the determined proportion of leakage signals in the monitored RF signals.

Please add new claims 27-68 as follows:

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27. [NEW] A repeater adapted to mediate RF signaling between first and second transceivers of a wireless communications network, the repeater comprising:

a wideband signal path adapted to process RF signals within a respective channel of the communications network;

a narrowband detector adapted to detect a power level of the RF signals within the wideband signal path; and

a controller adapted to control a gain of the wideband signal path based on the detected power level of the RF signals within the wideband signal path.

28. [NEW] A repeater as claimed in claim 27, wherein respective first and second wideband signal paths are adapted to simultaneously process RF signals within respective uplink and downlink channels of the communications network.

29. [NEW] A repeater as claimed in claim 28, wherein the narrowband detector and the micro controller are shared by the first and second wideband signal paths.

30. [NEW] A repeater as claimed in claim 28, wherein each wideband signal path has a bandwidth corresponding to a respective one of an uplink channel bandwidth and a downlink channel bandwidth of the wireless communications network.

31. [NEW] A repeater as claimed in claim 30, wherein the bandwidth of each channel is about 25 MHz.

32. [NEW] A repeater as claimed in claim 27, wherein the wideband signal path comprises:

a first gain control block adapted to selectively control a first gain of the wideband signal path, the first gain being selected to compensate attenuation of the RF signal traffic received by the repeater from the first transceiver; and

a second gain control block adapted to selectively control a second gain of the wideband signal path, the second gain being selected to compensate attenuation of the RF signal traffic transmitted by the repeater to the second transceiver.

33. [NEW] A repeater as claimed in claim 32, wherein the first gain control block is an Automatic Gain Control (AGC) block adapted to control the first signal gain based on a power of the signals received from the first transceiver.

B1 cont

34. [NEW] A repeater as claimed in claim 33, wherein the AGC block comprises:

a Variable Gain Amplifier (VGA) adapted to control gain of the wideband signal path in response to a gain control signal;

an AGC feed-back loop adapted to supply a feedback signal to the VGA as the gain control signal; and

a feed-back loop amplifier adapted to control a power level of the feedback signal supplied to the VGA, in response to an AGC control signal from the controller.

35. [NEW] A repeater as claimed in claim 34, wherein the feed-back loop amplifier comprises a variable amplifier operatively coupled to receive the AGC control signal from the controller.

36. [NEW] A repeater as claimed in claim 35, wherein the variable amplifier is a variable logarithmic amplifier.

37. [NEW] A repeater as claimed in claim 34, wherein the AGC feed-back loop further comprises a coupler adapted to supply a sample of RF signals in the wideband signal path to the narrowband detector.

38. [NEW] A repeater as claimed in claim 32, wherein the second gain control block comprises a slaved variable gain amplifier adapted to selectively control the second signal gain based on a power of RF signals received from the second transceiver.

39. [NEW] A repeater as claimed in claim 38, wherein the slaved variable gain amplifier is adapted to automatically reduce the second signal gain as the power of RF signals received from the second transceiver increases, and increase the second signal gain as the power of RF signals received from the second transceiver decreases.

B1 a2 cont

40. [NEW] A repeater as claimed in claim 27, wherein the narrowband detector comprises:

a synthesizer adapted to generate a synthesizer signal having a selected frequency;

an input adapted to receive a sample signal from the wideband signal path;

a mixer adapted to generate an intermediate frequency based on the synthesizer signal and the sample signal;

a signal isolator adapted to isolate, from the RF sample signal, signals lying within a narrow pass-band centered on the intermediate frequency; and

a detector unit adapted to detect at least a power level of the isolated RF signals.

41. [NEW] A repeater as claimed in claim 40, wherein the synthesizer is adapted to select a frequency of the synthesizer signal using a synthesizer control signal from the controller.

42. [NEW] A repeater as claimed in claim 40, wherein the input comprises a switching input adapted to selectively supply signals from one of the first and a second wideband signal paths to the mixer.

43. [NEW] A repeater as claimed in claim 40, wherein the signal isolator comprises a selectable filter adapted to selectively attenuate a portion of the sample signal lying outside the narrow pass-band.

44. [NEW] A repeater as claimed in claim 43, wherein the narrow pass-band has a bandwidth of approximately 30kHz.

45. [NEW] A repeater as claimed in claim 43, wherein the selectable filter is adapted to adjust a bandwidth of the narrow pass-band in response to a control signal from the controller.

46. [NEW] A repeater as claimed in claim 32, wherein the controller comprises:

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a micro-processor operatively coupled to each of the first and second gain control blocks and the narrowband detector; and

software defining an Adaptive Control Algorithm for controlling operation of the micro-processor.

47. [NEW] A repeater as claimed in claim 46, wherein the software comprises software code adapted to:

monitor a power level of RF signals detected by the narrowband detector;

compare the monitored power level to at least one threshold value; and

determine an optimum value of at least the first gain of the wideband signal path using the comparison result.

48. [NEW] A repeater as claimed in claim 47, wherein the software code adapted to monitor the power level of signals further comprises software code adapted to:

monitor changes in the power level of the signals detected by the narrowband detector; and

identify a signal format of the detected RF signals, using the monitored changes.

49. [NEW] A repeater as claimed in claim 47, further comprising software code adapted to select the threshold value from among a set of predetermined threshold values, using the identified signal format.

50. [NEW] A repeater as claimed in claim 47, wherein the software code adapted to monitor the power level of signals further comprises software code adapted to decorrelate desired RF signal traffic from undesired leakage signals within the wideband signal path.

51. [NEW] A repeater as claimed in claim 50, wherein the software code adapted to decorrelate desired RF signal traffic from undesired leakage signals comprises software code adapted to:

inject a predetermined unique code into the wideband signal path;

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detect a power level of the predetermined unique code in the monitored signal; and

determine a proportion of leakage signals in the monitored signal using on the detected power level of the predetermined unique code in the monitored signals.

52. [NEW] A repeater as claimed in claim 51, further comprising software code adapted to adjust the optimum value of at least the first gain of the wideband signal path using the determined proportion of leakage signals in the monitored RF signals.

53. [NEW] A method of controlling gain of a repeater adapted to mediate RF signal traffic between first and second transceivers of a wireless communications network, the method comprising steps of:

receiving RF signals of a channel of the communications network via a respective wideband signal path of the repeater;

detecting a power level of the RF signals within the wideband signal path; and

controlling a gain of the wideband signal path based on the detected power level of the RF signals within the wideband signal path.

54. [NEW] A method as claimed in claim 53, wherein the step of controlling gain of the wideband signal path comprises steps of:

selectively controlling a first gain of the wideband signal path, the first gain being selected to compensate attenuation of the RF signal traffic received by the repeater from the first transceiver; and

selectively controlling a second gain of the wideband signal path, the second gain being selected to compensate attenuation of the RF signal traffic transmitted by the repeater to the second transceiver.

55. [NEW] A method as claimed in claim 54, wherein the step of selectively controlling a first gain of the wideband signal path comprises steps of:

sampling signals in the wideband signal path to generate a feedback signal;

controlling a power level of the feedback signal in response to an AGC control signal to generate a gain control signal; and

controlling gain of the wideband signal path in response to the gain control signal.

56. [NEW] A method as claimed in claim 55, wherein the AGC control signal is generated by a controller.

57. [NEW] A method as claimed in claim 54, wherein the step of selectively controlling a second gain of the wideband signal path comprises steps of:

automatically reducing the second signal gain as the power of RF signals received from the second transceiver increases; and

automatically increasing the second signal gain as the power of RF signals received from the second transceiver decreases.

58. [NEW] A method as claimed in claim 54, wherein the step of detecting a power level of the signals within the wideband signal path comprises steps of:

generating a synthesizer signal having a selected frequency;

receiving a sample signal from the wideband signal path;

generating an intermediate frequency based on the synthesizer signal and the sample signal;

isolating, from the sample signal, signals lying within a narrow pass-band centered on the intermediate frequency; and

detecting at least a power level of the isolated signals.

59. [NEW] A method as claimed in claim 58, wherein the synthesizer signal frequency is selected using a synthesizer control signal from a micro controller.

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60. [NEW] A method as claimed in claim 58, wherein the step of receiving the sample signal comprises a step of controlling a switching input adapted to selectively supply sample signals from one of a first and a second wideband signal path of the receiver.

61. [NEW] A method as claimed in claim 58, wherein the step of isolating signals within the pass-band comprises a step of selectively attenuating a portion of the sample signal lying outside the narrow pass-band.

62. [NEW] A method as claimed in claim 58, wherein the step of isolating signals within the pass-band comprises a step of selectively adjusting a bandwidth of the narrow pass-band.

63. [NEW] A method as claimed in claim 55, wherein the step of controlling a power level of the feedback signal in response to an AGC control signal comprises steps of:

monitoring the detected power level of the signals within the wideband signal path;

comparing the monitored power level to at least one threshold value;

determine an optimum value of at least the first gain of the wideband signal path using the comparison result; and

generating the AGC control signal based on the determined optimum first gain.

64. [NEW] A method as claimed in claim 63, wherein the step of monitoring the power level of the RF signals within the wideband signal path further comprises steps of:

monitoring changes in the power level of the signals; and

identifying a signal format of the detected signals using the monitored changes.

65. [NEW] A method as claimed in claim 64, further comprising a step of selecting the threshold value from among a set of predetermined threshold values, using the identified signal format.

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66. [NEW] A method as claimed in claim 63, wherein the step of monitoring the power level of the RF signals within the wideband signal path further comprises a step of decorrelating desired signal traffic from undesired leakage signals within the wideband signal path.

67. [NEW] A method as claimed in claim 66, wherein the step of decorrelating desired signal traffic from undesired leakage signals comprises steps of:

injecting a predetermined unique code into the wideband signal path;

detecting a power level of the predetermined unique code in the monitored signal; and

determining a proportion of leakage signals in the monitored signal using on the detected power level of the predetermined unique code in the monitored signal.

68. [NEW] A method as claimed in claim 67, further comprising a step of adjusting the optimum value of at least the first gain of the wideband signal path using the determined proportion of leakage signals in the monitored signals.